

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A process of detecting an oligonucleotide elongation, the process comprising:

- (a) providing an oligonucleotide;
- (b) combining a detectable moiety and the oligonucleotide to form a labeled oligonucleotide, the labeled oligonucleotide characterized by an ~~association-independent~~ ~~of a dual-contribution~~ organometallic coordinate covalent bond between the detectable moiety and the oligonucleotide;
- (c) adding the labeled oligonucleotide to an oligonucleotide elongation mixture;
- (d) initiating an elongation reaction in the oligonucleotide elongation mixture; and
- (e) assaying for the labeled oligonucleotide in the oligonucleotide elongation mixture to detect the oligonucleotide elongation.

2. (Canceled)

3. (Original) The process of claim 1 wherein the detectable moiety comprises a fluorophore.

4. (Original) The process of claim 1 wherein the detectable moiety comprises a metal-containing fluorescent compound.

5. (Original) The process of claim 4 wherein the metal-containing fluorescent compound comprises platinum.

6. (Original) The process of claim 4 wherein the metal-containing fluorescent compound comprises a metal selected from the group consisting of: palladium, rhodium, ruthenium, osmium, and iridium.

7. (Original) The process of claim 1 wherein the elongation reaction is a polymerase chain reaction.

8. (Original) The process of claim 1 wherein the elongation reaction is a reverse transcription reaction.

9. (Original) The process of claim 1 wherein the elongation reaction is a primer extension reaction.

10. (Original) The process of claim 1 wherein the elongation reaction is a ligase chain reaction.

11. (Previously Presented) The process of claim 1 wherein the process further comprises purifying the labeled oligonucleotide.

12. (Previously Presented) The process of claim 1 wherein the step of assaying the labeled oligonucleotide comprises a measurement selected from the group consisting of: fluorescence polarization, fluorescence intensity, and fluorescence resonance energy transfer.

13-14. (Canceled)

15. (Currently Amended) A process of detecting an oligonucleotide elongation, the process comprising the steps of:

- (a) providing an oligonucleotide elongation reaction mixture comprising an oligonucleotide labeled with a fluorescent compound ~~by—~~ through an ~~association independent of a dual contribution~~ organometallic coordinate covalent bond;
- (b) measuring a fluorescence parameter in the oligonucleotide elongation reaction mixture at a first time point to obtain a test measurement; and
- (c) comparing the test measurement with a reference measurement to detect the oligonucleotide elongation.

16. (Original) The process of claim 15 wherein the reference is a second measurement of a fluorescence parameter in the oligonucleotide reaction mixture at a second time point.

17. (Original) The process of claim 16 wherein the second time point is before initiation of the elongation reaction.

18. (Original) The process of claim 16 wherein the first and second time points are after initiation of the elongation reaction.

19. (Original) The process of claim 15 wherein the reference is a measurement of a fluorescence parameter in a second oligonucleotide extension reaction mixture.

20. (Canceled)

21. (Original) The process of claim 15 wherein the fluorescent compound is a metal-containing fluorescent compound.

22. (Original) The process of claim 21 wherein the metal-containing fluorescent compound comprises platinum.

23. (Original) The process of claim 21 wherein the metal-containing fluorescent compound comprises a metal selected from the group consisting of: palladium, rhodium, ruthenium, osmium, and iridium.

24. (Original) The process of claim 15 wherein the elongation reaction is a polymerase chain reaction.

25. (Original) The process of claim 15 wherein the elongation reaction is a reverse transcription reaction.

26. (Original) The process of claim 15 wherein the elongation reaction is a primer extension reaction.

27. (Original) The process of claim 15 wherein the elongation reaction is a ligase chain reaction.

28. (Original) The process of claim 15 wherein the fluorescence parameter is selected from the group consisting of: fluorescence polarization and fluorescence intensity and fluorescence resonance energy transfer.

29-38. (Canceled)

39. (Previously Presented) A process of detecting formation of an oligonucleotide hybrid, the process comprising:

- (a) providing a hybridization reaction mixture comprising an oligonucleotide labeled with a metal-containing fluorescent compound;
- (b) measuring a fluorescence parameter associated with the metal-containing fluorescent compound in the hybridization reaction mixture at a first time point to obtain a test measurement; and
- (c) comparing the test measurement with a reference measurement to detect the oligonucleotide hybridization.

40-54. (Canceled)